CLAIMS

1. A method for producing large area display panels comprising the steps of:

producing a mask with a predetermined pattern according to input data (S1);

exposing a substrate with a radiant energy and with use of the mask to impose the pattern of the mask on the substrate, whereby said substrate has a layer being sensitive to said radiant energy (S2);

measuring the pattern on the substrate and detecting deviations, and at least position errors, relative to the intended pattern as given by the input data (S3);

producing a second mask with a pattern according to second input data and modified to diminish the measured deviations, and at least said measured and detected position errors, and thus compensate for production distortions (S5);

using said modified mask in a subsequent fabrication of large area display panels (S6).

2. A method according to claim 1, whereby the radiant energy is light, used for microlithographically exposing a photosensitive substrate.

3. A method according to claim 1 or 2, whereby the measuring is made after processing steps, such as development, etching, blasting or high-temperature processing, following the exposure.

4. A method according to one of the claims 1-3, whereby the first and the second mask are based on the same input data.

5. A method according to one of the claims 1-3, whereby the first mask is a reference mask based on reference input data, whereas the second mask is based on the actual product data.

6. A method according to any one of the claims above, whereby the compensation used is a statistical mean value of the compensation according to the
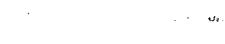
measurement and compensations according to prior measurements.

7. A method according to any one of the claims above, wherein at least one additional measurement is made during the process, whereby the compensations is a statistical mean value of compensation parts related to the process before the first measurement, and the process between the measurements.

8. A method according to any one of the claims above, whereby the thickness of the sensitive layer before the exposure on the mask blank or on the substrate is measured, whereby said measurement data are used for additional compensation.

9. A method according to any one of the claims above, whereby already existing patterns on the substrate is measured prior to the exposure, whereby said measurement is used for additional compensation.

10. A method according to any one of the claims above, whereby said method is performed once for each substrate batch used in said fabrication.

11. A method according to any one of the claims above, whereby the measurement comprises measurement of position errors and pattern line width errors.

12. A method according to any one of the claims above, whereby said compensation is performed by time offsets or room offsets in the pattern writer used for producing the second mask.

13. A system for producing large area display panels comprising:

a first mask generator (1) for producing a mask with a predetermined pattern according to input data;

an exposing means (2) for exposing a substrate with radiant energy and with use of a mask to impose the pattern of the mask on the substrate, whereby said substrate has a layer being sensitive to said radiant energy;

a measuring device (3) for measuring the pattern on

AMENDED SHEET

the substrate and detecting deviations, and at least position errors, relative to the intended pattern as given by the input data;

a second mask generator (1) for producing a second
5 mask according to second input data, and being controllable according to said measurement, to modify the pattern on the mask to compensate for the measured deviations, and at least said measured and detected position errors, and thus compensate for production
10 distortions.

14. A system according to claim 13, whereby the radiant energy is light, for microlithographically exposing a photosensitive substrate.

15. A system according to claim 13 or 14, comprising
15 at least one additional measuring device, whereby the compensations is a statistical mean value of compensation parts related to the process before the first measurement, and the process between the measurements.

16. A system according to one of the claims 13-15,
20 whereby the first and the second mask generator (1) are the same device.

17. A system according to any one of the claims 13-16, further comprising a second measuring device (4) for measuring the thickness of the light sensitive layer on
25 the substrate prior to the exposure, whereby said measurement is used for additional compensation.

18. A system according to any one of the claims 13-17, further comprising a third measuring device (4) for measuring of existing patterns on the substrate prior to
30 the exposure, whereby said measurement is used for additional compensation.

19. A system according to any one of the claims 13-18, whereby the first measuring device comprises means for measurement of position errors and pattern line width
35 errors.

20. A system according to any one of the claims 13-19, whereby said mask generator comprises a pattern

writer, being controllable for said compensations by
means of time offsets during the writing.

21. A large-area pattern generator comprising:

an exposing system for exposing a substrate with
5   radiant energy and according to input pattern data to
impose a predetermined pattern on the substrate, whereby
said substrate has a layer being sensitive to said
radiant energy;

a geometry-correcting system for correcting the
10 pattern being imposed in the substrate according to
digital distortion data, comprising effectuators for
controlling at least one of the feeding of input pattern
data in the data path, the movement of the substrate or
the pattern placement on the substrate.

15   22. A pattern generator according to claim 21,
wherein the distortion data is generated by measuring a
pattern of a previous exposure and detecting deviations
relative to the intended pattern as given by the input
data.

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AMENDED SHEET